

State of California
AIR RESOURCES BOARD

STAFF REPORT

**Analysis of the Imperial County 2009 1997 8-Hour Ozone
Modified Air Quality Management Plan and
Reasonably Available Control Technology Plan**

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Air Resources Board

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I. Introduction

This staff report reviews plans adopted by the Imperial County Air Pollution Control District to address federal Clean Air Act (CAA) nonattainment area plan requirements applicable to moderate ozone nonattainment areas.

With the promulgation of the 1997 8-hour ozone National Ambient Air Quality Standard (NAAQS) in April 2004, the United States Environmental Protection Agency (U.S. EPA) classified Imperial County as a marginal nonattainment area. On February 13, 2008, U.S. EPA found that Imperial County had not attained the 1997 8-hour ozone NAAQS by the marginal area deadline of June 2007, and reclassified the County as a moderate nonattainment area. U.S. EPA's action also required the State to submit a moderate area SIP for the Imperial County nonattainment area, by December 31, 2008, that demonstrates attainment of the 8-hour ozone standard by June 15, 2010.

On February 19, 2009, ARB requested that U.S. EPA make a "clean data" finding for Imperial County. The request demonstrated that the area's 2008 design value for the 8-hour ozone NAAQS, which was based on monitoring data collected from 2006 through 2008, showed attainment of the standard. U.S. EPA issued its clean data finding on December 3, 2009.

A clean data finding does not constitute a redesignation to attainment under the national CAA, so Imperial County remains a moderate nonattainment area. The clean data finding suspended some CAA nonattainment area plan requirements. However, the State is still required to submit revisions to the SIP to address remaining elements required for moderate ozone nonattainment areas, including rule review and adoption relative to the reasonably available control technology (RACT) requirements, emission inventories, and new source review requirements.

On July 30, 2010, the Imperial County Air Pollution Control District adopted the 2009 1997 8-Hour Ozone Modified Air Quality Management Plan (2009 Ozone Plan) and 2009 Reasonably Available Control Technology State Implementation Plan (2009 RACT SIP) to address the CAA moderate area plan requirements.

ARB staff reviewed the Imperial County 2009 Ozone Plan and RACT SIP and find that both plans meet all applicable CAA requirements for a moderate nonattainment area. Staff recommends that the Air Resources Board adopt the Imperial County 2009 Ozone Plan and the 2009 RACT SIP and direct the Executive Officer to submit the plans to U.S. EPA as proposed revisions to the California SIP.

II. Background

Profile of Imperial County

Imperial County is part of the Salton Sea Air Basin. The Imperial County Ozone Nonattainment Area consists of the entire county, and is under the jurisdiction of the Imperial County Air Pollution Control District (District).

Imperial County covers 4,482 square miles of mostly arid lands in the southeastern corner of California. It is bordered by Mexico to the south, Arizona on the east, San Diego County on the west, and Riverside County on the north. Imperial County's elevation ranges from more than 2,800 feet on the mountain summits to the east to 230 feet below sea level in the Salton Sea. Winters are mild and dry with daily average temperature ranges between 65 and 75°F, although daily high temperatures of up to 80°F are not uncommon. Summers are extremely hot with daily average temperature ranges between 104 and 115°F and daily high temperatures of up to 120°F. The County has an annual rainfall of approximately 3 inches, occurring mostly from late summer to midwinter.

Imperial County has a population of approximately 180,000 people. The County's major population centers include the cities of El Centro (25 percent of the county population), Calexico (22 percent), and Brawley (15 percent). Approximately 22 percent of the population resides in unincorporated areas.

Mexicali, Mexico – a city of approximately 900,000 people – spreads southward from the California/Mexico border at Imperial County. Mexicali's residential and industrial centers begin less than 5 miles from Calexico and 15 and 25 miles, respectively, from El Centro and Brawley. Because the New River is the only geographical feature separating Imperial County from Mexicali, air pollution transport between the two areas is possible. ARB's June, 1993 transport assessment report identified Mexico as the source of emissions that caused or contributed to some of the exceedances of the state ozone standard recorded in Imperial County from 1989 to 1991¹.

Air Quality History

Ozone air quality has improved significantly in Imperial County in recent years as shown by both the number of days in which ozone values exceed the 8-hour ozone NAAQS (exceedance days) and the recorded daily high ozone concentrations. In 1997, Imperial County exceeded the 1997 8-hour ozone NAAQS of 0.085 parts per million (0.085 ppm), also expressed as 85 parts per billion (85 ppb), on 50 days. In 2009, the number of exceedance days declined to 2. Table 1 shows the progressive decrease in exceedance days at each routine monitoring site in Imperial County.

¹ Air Resources Board, Assessment and Mitigation of the Impacts of Transported Pollutants on Ozone Concentrations in California, June 1993

Table 1
Imperial County Exceedance Days, 8-Hour Ozone NAAQS
2001 - 2009

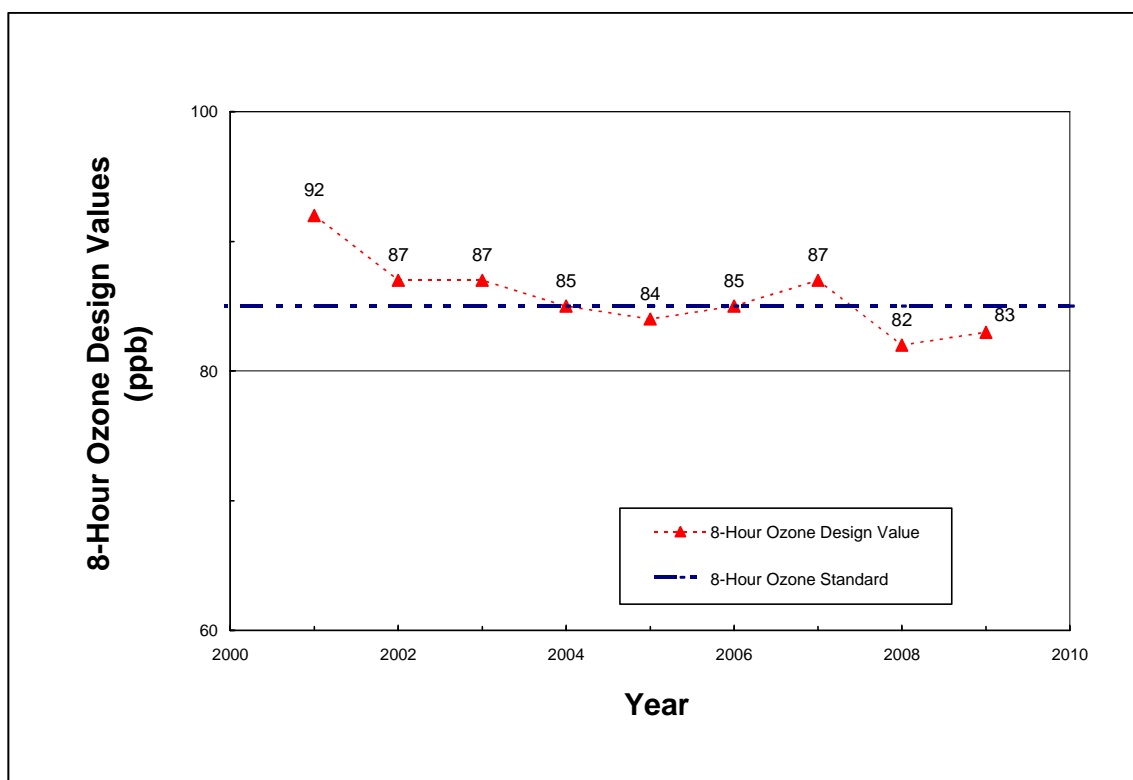
Monitoring Site	2001	2002	2003	2004	2005	2006	2007	2008	2009
Calexico East	7	4	0	1	0	0	2	1	0
Calexico Ethel	11	1	0	0	1	1	4	4	0
El Centro	2	9	8	0	5	9	3	0	1
Niland	1	5	0	0	0	0	0	1	0
Westmorland	1	0	0	0	10	5	5	2	1

Figure 1 shows the federal design value trend in Imperial County from 2001 to 2009 and the respective 1997 8-hour ozone standard. The SIP design value is based on the fourth highest value recorded each year, averaged over three consecutive years. Imperial County's 8-hour ozone design value has decreased by ten percent since 2001, and now meets the 1997 federal NAAQS.

When compared to other indicators such as peak concentrations, the design value is a more stable indicator for evaluating year to year changes resulting from emission control programs, and is the only indicator that can be used to determine compliance with the NAAQS. Peak concentrations measure the severity of ozone exposure but not the frequency, and can be influenced by year to year weather variations.

The U.S. EPA is in the process of revising the 8-hour ozone NAAQS, and is expected to promulgate its revised standard in late 2010. The range of values the agency is considering for the new NAAQS – from 0.070 ppm to 0.060 ppm (70 ppb to 60 ppb) – is from 29 percent to 17 percent more stringent than the current 8-hour ozone NAAQS of 0.085 ppm. Recent monitoring data suggests that Imperial County will be designated as nonattainment for the new standard.

Figure 1
Imperial County Design Value



III. Moderate Area Requirements

On December 3, 2009, U.S. EPA published its finding that Imperial County attained the 1997 8-hour ozone standard. U.S. EPA's "clean data finding" suspends certain SIP elements including the attainment demonstration, reasonable further progress demonstration, and contingency measures requirements. However, some SIP requirements remain, and some were added when U.S. EPA reclassified Imperial County from marginal to moderate. Table 2 shows SIP elements required for marginal and moderate area plans, and identify the SIP elements suspended by the clean data finding.

Table 2
**Marginal and Moderate Ozone Nonattainment Area SIP Requirements and
Clean Data Finding Elements**

Ozone Part D SIP Requirement	marginal area	moderate area	requirement suspended with clean data finding
Attainment demonstration (182(b)(1))		x	x
Subpart 1 Reasonably Available Control Measures (172(c)(1))	x	x	x
Reasonable Further Progress (172(c)(2), 182(b)(1))		x	x
Contingency measures (172(c)(9))		x	x
Vehicle Inspection/Maintenance (182(a)(2)(B), (b)(4))	x	x	Note: N/A in Imperial County because of population (<200,000)
Stage 2 Gasoline Vapor Recovery (182(b)(3))		Note: Stage 2 GVR no longer required in moderate ozone areas per Onboard Refueling Vapor Recovery rule. CAA 202(a)(6); 59 FR16262 (April 6, 1994).	
Emissions Inventory (172(c)(3), 182(a)(1))	x	x	
New Source Review (172(c)(4) and (5); 182(a)(2)(C))	x	x	
Infrastructure SIP (172(c)(7))	x	x	
Subpart 2 Reasonably Available Control Technology for VOCs and NOx (182(b)(2), 182(f))		x	
Periodic Inventory (182(a)(3)(A))	x	x	
Emissions Statement Rule (182(a)(3)(B))	x	x	
Offset Ratio (182(a)(4); 182(b)(5))	1.1 to 1	1.15 to 1	

IV. Evaluation of the Imperial County Modified Plan

ARB staff has reviewed the Imperial County 2009 Ozone Plan and the District's supporting technical analysis, and determined that the plan meets CAA SIP requirements for moderate ozone nonattainment areas. The following sections describe the major elements of the plan.

A. Attainment of the 1997 8-Hour Ozone Standard

On February 19, 2009, ARB requested that U.S. EPA make a "clean data" finding for Imperial County. The request demonstrated that the area's 2008 design value for the 8-hour ozone NAAQS, which was based on monitoring data collected from 2006 through 2008, show attainment of the 1997 8-hour ozone NAAQS. On December 3, 2009, U.S. EPA published a clean data finding for Imperial County. Subsequent monitoring data show that the County continues to meet the 1997 8-hour ozone standard. Figure 2 illustrates the Imperial County ozone nonattainment area and monitoring locations.

Figure 2 shows the location of routine ozone monitoring stations in Imperial County. The number of routine ozone monitoring sites in Imperial County exceeds the monitoring density required in federal regulations for a county of approximately 180,000 residents (40 CFR Part 58, Appendix D).

Figure 2
Map of Imperial County and Monitoring Stations

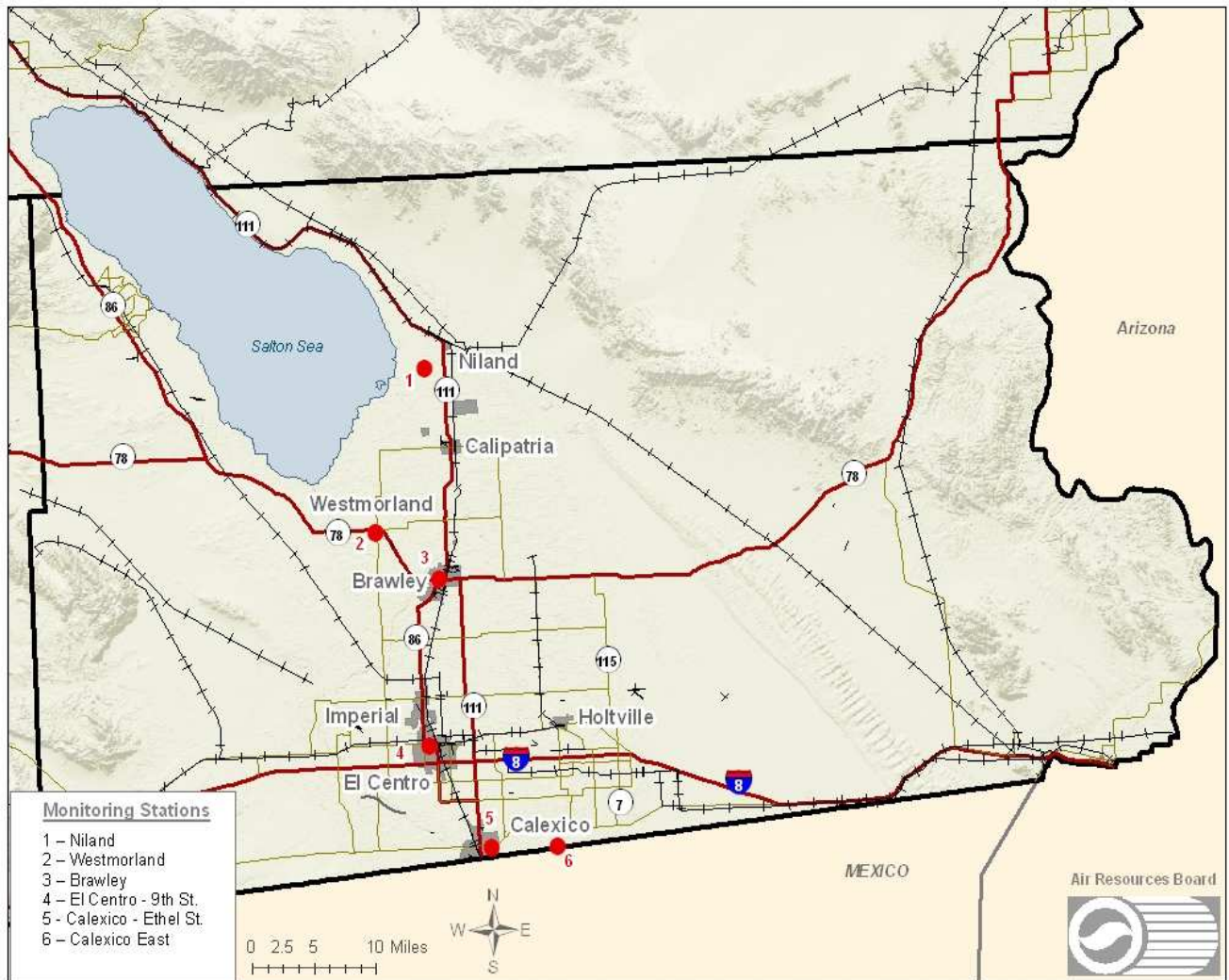


Table 3 shows the Imperial County air monitoring stations design values for 2006 through 2009, representing 2004 through 2009 monitoring data. The design values for all of the monitoring sites are at or below the mandated 0.085 ppm threshold. The El Centro 9th Street and Westmorland started with the highest design values; both show a trend of improving air quality. The design values for the Niland and Calexico-East sites show slight upward trends, but in both cases are still well below the 1997 8-hour ozone standard. On the map above, a dot represents an air monitoring station.

Table 3
Imperial Monitoring Station County Design Values
(ppm)

Monitoring Sites	2006	2007	2008	2009
El Centro-9th Street	0.085	0.086	0.082	0.079
Westmorland-W 1st Street	0.085	0.087	0.082	0.079
Niland	0.073	0.074	0.075	0.076
Calexico-Ethel	0.074	0.079	0.080	0.083
Calexico East	0.076	0.079*	0.079*	0.075*
Calexico Grant	0.069	0.072	Closed	Closed

* Design values impacted by the deletion of June 2007 through October 2007 data due to monitoring irregularities.

Pollution transport from Mexico contributed to high readings in some ozone exceedance days in Calexico, and possibly in some other Imperial County sites. The CAA allows the exclusion of concentrations caused by transport from another country in the development of attainment demonstration plans. This plan does not utilize international transport exclusion since the clean data finding does not rely on the transport argument.

B. Moderate Nonattainment Area Requirements

As discussed earlier, U.S. EPA's clean data finding suspends certain SIP requirements. This section reviews the elements that the District submitted to fulfill the remaining moderate area nonattainment requirements.

New Source Review and Offset Ratio

Federal New Source Review (NSR) regulations are applied to the siting and modification of sources that are located in areas designated as federal nonattainment for NAAQS. The purpose of federal NSR is to ensure that ambient air quality does not deteriorate any further in nonattainment areas. Imperial's SIP-approved NSR rule, Rule 207, was adopted by the Imperial County Air Pollution Control Board on November 10, 1980. The CAA requires moderate nonattainment areas to have offsets ratios of 1.15 to 1. Rule 207 has a 1.15 to 1 offset ratio for ozone precursors. This rule and the offset ratio fulfill the requirements of the CAA.

RACT Analysis

The District completed its RACT analysis in a separate document (please refer to Section V). The Imperial County Air Pollution Control Board adopted the 2009 RACT SIP at the July 13, 2010, Board meeting.

Emissions Inventory

The precursors of ozone are oxides of nitrogen (NO_x) and reactive organic gases (ROG). Mobile sources contribute the bulk of Imperial County's NO_x emissions with heavy duty trucks clearly leading locomotives, and passenger vehicles as the top source (Table 4). Livestock waste, passenger vehicles, and pesticides constitute the top sources for ROG emissions (Table 5). ROG and NO_x emissions decreased significantly in these categories between 2002 and 2009, as did total emissions, as shown in Tables 4 and 5.

The Emission Statement Rule requires the owner or operator of each stationary source that emits NO_x or ROG to provide a statement for classes or categories of sources showing the actual emissions. The Imperial County Air Pollution Control Board adopted an Emissions Statement and Certification Rule on February 23, 2010.

Air Quality Planning

In developing this plan, the District held regularly scheduled SIP working group meetings that included various community representatives, health, environmental, and industry and military representatives, local and county governments, and state and federal agencies. The meetings were initiated in March 2008 and ended in June 2009. The District also posted drafts of the 2009 Ozone Plan on their website throughout the process.

Table 4
Imperial County NOx Sources

Imperial County - Top Sources of NOx (tons per day)			
Rank (2002)	Source Category	2002	2009
1	HEAVY DUTY DIESEL TRUCKS	13	11
2	LOCOMOTIVES	7	5
3	PASSENGER VEHICLES	6	5
4	FARM EQUIPMENT (COMBINES AND TRACTORS)	3	2
5	OFF-ROAD EQUIPMENT	2	1
6	ELECTRIC UTILITIES	1	1
7	MANUFACTURING AND INDUSTRIAL (BOILERS, IC ENGINES)	1	1
8	MANAGED BURNING AND DISPOSAL	1	1
9	AIRCRAFT	1	2
10	AGRICULTURAL IRRIGATION PUMPS	1	1
TOP 10 CATEGORIES TOTAL		36	31
TOTAL EMISSIONS		37	32
TOP 10 CATEGORIES PERCENT OF TOTAL		96%	95%

Numbers may not add due to rounding
 "Top 10" categories are prioritized by 2002 emissions

Table 5
Imperial County ROG Sources

Imperial County - Top Sources of ROG (tons per day)			
Rank (2002)	Source Category	2002	2009
1	LIVESTOCK WASTE	9	6
2	PASSENGER VEHICLES	7	5
3	PESTICIDES	5	3
4	OFF-ROAD RECREATIONAL VEHICLES	3	4
5	MANAGED BURNING AND DISPOSAL	2	2
6	ASPHALT PAVING / ROOFING	2	2
7	CONSUMER PRODUCTS	1	1
8	AIRCRAFT	1	2
9	HEAVY DUTY DIESEL TRUCKS	1	1
10	RECREATIONAL BOATS	1	1
TOP 10 CATEGORIES TOTAL		33	27
TOTAL EMISSIONS		37	32
TOP 10 CATEGORIES PERCENT OF TOTAL		87%	86%

Numbers may not add due to rounding
 "Top 10" categories are prioritized by 2002 emissions

The District released the draft 2009 Ozone Plan and the 2009 RACT SIP on June 13, 2010 following several months of coordinated efforts between District staff and the SIP working group. The District released a notice of public hearing for the adoption of the 2009 Ozone Plan and associated negative declaration 30 days prior to its Board meeting, and held two public workshops to discuss both the 2009 Ozone Plan and 2009 RACT SIP.

Air Pollution Transport

Since Imperial County in effect shares an air basin with the Baja California city of Mexicali, ozone levels in southern part of the county are likely impacted by emissions from Mexico. The CAA allows states to demonstrate that an area would have attained the NAAQS by the applicable attainment date but for emissions emanating from outside of the United States (CAA section 179B(b)). Imperial County's 2009 Ozone Plan does not utilize the international transport provision since it was not needed to demonstrate attainment of the 1997 8-hour ozone NAAQS. However, ARB has previously assessed the impacts of transported pollutants on violations of the State Ambient Air Quality Standard (SAAQS) for ozone, and determined that transport from Mexico can cause or contribute to high ozone levels in Imperial County. ARB, the local District, and U.S. EPA continue to coordinate on efforts to improve air quality and reduce transported pollutants throughout the border region.

V. 2009 RACT SIP

Ozone non-attainment areas classified as moderate or above are required by CAA sections 182(b)(2) and 182(f) to implement RACT for sources subject to Control Techniques Guideline (CTG) documents and for all major sources of VOC and NOx that are not subject to a CTG. The 2009 RACT SIP fulfills CAA requirements for a moderate area, and ARB staff recommends that it be submitted as a SIP revision simultaneously with the 2009 Ozone Plan. The District worked closely with U.S. EPA and stakeholders as it prepared its RACT SIP. The District also released a public notice 30 days prior to its Board hearing, and held two workshops to discuss the draft 2009 RACT SIP. On July 13, 2010, the Imperial County Air Pollution Control Board adopted the 2009 RACT SIP.

VI. Staff Recommendations

ARB staff has reviewed the Imperial County 2009 Ozone Plan for the Imperial County ozone nonattainment area, including the 2009 RACT SIP, and consulted with District staff during its review. ARB staff finds that the Imperial County 2009 Ozone Plan and 2009 RACT SIP meet all applicable CAA requirements for a moderate nonattainment area. Staff recommends that the Board adopt the Imperial County 2009 1997 8-Hour Ozone Modified Air Quality Management Plan and 2009 Reasonably Available Control Technology State Implementation Plan, and direct the Executive Officer to submit them to U.S. EPA as proposed revisions to California's SIP.